IN THE CLAMS:

Please cancel claim 25 and amend claims 24, 26, 27, 28, 32, 35 and 36, as follows:

1-23. (Cancelled)

24. (Currently amended) Sensor system for determining the glucose concentration in blood, comprising an implantable sensor (1, 1') and a user device (B) associated with the latter, wherein the sensor (1, 1') is in the form of an ampoule which contains a sensitive liquid and into which glucose can penetrate, in that the viscosity of the mixture consisting of the sensitive liquid and the glucose is measured, and in that the user device (B) consists of a portable device configured to be worn externally on the skin, the measurement and its evaluation being controlled through the user device (B) and wherein the viscosity is measured on the basis of the oscillatory behaviour of an oscillating element (8) in the form of a bending bar which is disposed in the sensor (1) and can be excited to oscillate by an oscillating magnetic field.

25. (Cancelled)

26. (Currently amended) Sensor system according to Claim ~~25~~24, wherein the oscillatory behaviour of the oscillating element (8) is analysed on the basis of its decay behaviour following switch-off of ~~the~~ a magnet (6), the oscillating element (8) itself generating a magnetic field which is measured by the user device.

27. (Currently amended) Sensor system according to Claim ~~25~~24, wherein the oscillating element additionally homogenizes the liquid in the sensor (1).

28. (Currently amended) Sensor system according to Claim 27, wherein the oscillating element (8) is positively joined to ~~the~~ a magnet (6) ~~and consists of a bending bar~~.

29. (Previously presented) Sensor system according to Claim 28, wherein the magnet (6) is attached to one of the two ends of the bending bar and can be caused to oscillate by a magnetic field (13).

30. (Previously presented) Sensor system according to Claim 29, wherein the said magnetic field (13) is generated by an electromagnetic arrangement provided in the user device (B) or by an electric coil provided in the sensor (1).

31. (Previously presented) Sensor system according to Claim 24, wherein the sensor (1) comprises a semi-permeable wall (2) which permits penetration by glucose.

32. (Currently amended) Sensor system according to Claim ~~25~~24, wherein a plastic part (3) is disposed in the sensor (1), partially filling the latter and confining the liquid volume, and is designed as a support for the oscillating element (8) and has an elongated bore (5) into which

there projects an arm (11) which is disposed on ~~the~~ a magnet (6) and which is provided for mixing the liquids together.

33. (Previously presented) Sensor system according to Claim 30, wherein the said electromagnetic arrangement includes means for excitation of the magnet (6) in the sensor (1) and a magnetic-field sensor for the magnetic field generated by this magnet.

34. (Previously presented) Sensor system according to Claim 33, wherein the said means and the said magnetic-field sensor consist of a magnet (12) and a coil (14) exciting the latter, and of a microprocessor (15) connected to the coil (14).

35. (Currently amended) ~~Sensor system according to Claim 24,~~ Sensor system for determining the glucose concentration in blood, comprising an implantable sensor (1, 1') and a user device (B) associated with the latter, wherein the sensor (1, 1') is in the form of an ampoule which contains a sensitive liquid and into which glucose can penetrate, in that the viscosity of the mixture consisting of the sensitive liquid and the glucose is measured, and in that the user device (B) consists of a portable device configured to be worn externally on the skin, the measurement and its evaluation being controlled through the user device (B), wherein the viscosity is measured on the basis of the rotation of a measuring element (35) which is disposed in the sensor (1') and which can be driven by a driving magnet (24), ~~likewise disposed in the sensor (1')~~ the rotation of the measuring element (35) being analysed on the basis of its decay behaviour following switch-off of the driving magnet (24).

36. (Currently amended) Sensor system according to Claim 35, wherein the driving magnet (24) is disposed in the sensor, ~~the rotation of the measuring element (35) is being analysed on the basis of its decay behaviour following switch-off of the driving magnet (24)~~.

37. (Previously presented) Sensor system according to Claim 36, wherein the sensor (1') is of a two-stage construction, and has a head portion (20) and a measuring portion (21), the head portion (20) containing the driving magnet (24) and the measuring portion (21) containing the measuring element (35), and the driving magnet (24) being disposed in a casing (23), so as to be shielded against liquid.

38. (Previously presented) Sensor system according to Claim 37, wherein provided between the head portion (20) and the measuring portion (21), is a reference portion (22), joining the latter two portions, which comprises a chamber (27) that is sealed against liquid and includes a rotatably mounted reference element (28) and the said sensitive liquid.

39. (Previously presented) Sensor system according to Claim 37, wherein the head portion (20) and the measuring portion (21) are each of a cylindrical form, the diameter of the head portion (20) being greater than that of the measuring portion (21).

40. (Previously presented) Sensor system according to Claim 38, wherein the reference portion (22) has the form of a truncated cone, and in that the reference element (28) and the measuring element (35) are designed as elongated cylinders.

41. (Previously presented) Sensor system according to Claim 40, wherein the measuring portion (21) is designed as an elongated casing (34) which comprises window-type openings (36) and is lined on the inside with a semi-permeable film (37) which permits penetration by glucose.

42. (Previously presented) Sensor system according to Claim 41, wherein the driving magnet (24) can be caused to rotate by a magnetic field which is generated by an electromagnetic arrangement provided in the user device (B).

43. (Previously presented) Sensor system according to Claim 42, wherein the measuring element (35) is driven via magnetic couplings (29, 31; 30, 38) between the driving magnet (24) and the reference element (28) and between the reference element (28) and the measuring element (35), respectively.

44. (Previously presented) Sensor system according to Claim 43, wherein the magnetic coupling (30, 38) between the reference element (28) and the measuring element (35) is of such design that the measuring element (35) effects coupled rotation only to a certain critical rotational frequency.

45. (Previously presented) Sensor system according to Claim 44, wherein, following switch-off of the drive of the driving magnet (24), the decay of its rotation is determined, above the critical rotational frequency, exclusively by the viscosity of the sensitive liquid in the chamber (27) of the reference portion (22) and, below the critical rotational frequency, by the viscosity of the mixture consisting of sensitive liquid and glucose in the casing (34) of the measuring portion (21).

46. (Previously presented) Sensor system according to Claim 45, wherein a value of the glucose concentration, which is non-dependent on the temperature, is determined on the basis of the two viscosity values above and below the critical rotational frequency.